

(FILE 'HOME' ENTERED AT 12:12:37 ON 21 OCT 2004)

FILE 'MEDLINE, EMBASE, CAPLUS, BIOSIS' ENTERED AT 12:13:15 ON 21 OCT 2004

L1	2391485 S CALCIUM OR CA
L2	3352913 S PLASMID OR DNA OR NUCLEIC
L3	75645 S L2 AND L1
L4	10741985 S ENHANC? OR INCREAS?
L5	121365 S GENE DELIVERY OR GENE TRANSFE? OR NUCLEIC ACID TRANSFE? OR DN
L6	894 S L5 AND L4 AND L3 AND L2 AND L1
L7	881514 S IONS
L8	27 S L7 AND L6
L9	14 DUP REM L8 (13 DUPLICATES REMOVED)

L9 ANSWER 6 OF 14 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.
 on STN DUPLICATE 3
 AN 1998021514 EMBASE
 TI Mechanism of **calcium** ion induced multilamellar vesicle-
DNA interaction.
 AU Mozafari N.R.; Hasirci V.
 CS V. Hasirci, Middle East Technical University, Biotechnology Research Unit,
 Biotechnology Research Unit, Ankara 06531, Turkey
 SO Journal of Microencapsulation, (1998) 15/1 (55-65).
 Refs: 40
 ISSN: 0265-2048 CODEN: JOMIEF
 CY United Kingdom
 DT Journal; Article
 FS 022 Human Genetics
 027 Biophysics, Bioengineering and Medical Instrumentation
 030 Pharmacology
 037 Drug Literature Index
 039 Pharmacy
 LA English
 SL English
 AB The effect of Ca^{2+} on the **DNA** interaction with anionic and
 neutral multilamellar vesicles (MLV) has been investigated. **DNA**
 from wheat (*Triticum aestivum* L. Gerek) was introduced to a suspension of
 MLV, composed of phosphatidylcholine (PC):dicetylphosphate
 (DCP):cholesterol (CHOL) at different molar ratios, to which Ca^{2+} (5-75
 mM) was subsequently added. Indication of aggregation and/or fusion was
 obtained via light-scattering examination following the addition of Ca^{2+}
 and **DNA** to the MLV medium. Using a UV spectrophotometric assay,
 it was observed that although **DNA** alone has no effect on
 negatively charged MLV, it **enhances** liposomal interaction in the
 presence of **calcium ions**. The minimal Ca^{2+}
 concentration required to promote the interaction was detected to be 10
 mM, and the highest level of interaction was observed at 75 mM. The
 aggregation/fusion of vesicles was detected for uncharged MLV (with no DCP
 in their structure), as well as for the anionic ones containing c. 10%
 CHOL, but not for anionic MLV containing 40% CHOL. This is explained in
 terms of cholesterol decreasing the membrane fluidity (above the T_c of
 components) as a result of which more rigid vesicles become less prone to
 aggregation/fusion interactions.

L9 ANSWER 5 OF 14 MEDLINE on STN DUPLICATE 2
 AN 1999227116 MEDLINE
 DN PubMed ID: 10209255
 TI **Calcium ions** as efficient cofactor of
 polycation-mediated **gene transfer**.
 AU Haberland A; Knaus T; Zaitsev S V; Stahn R; Mistry A R; Coutelle C; Haller
 H; Bottger M
 CS Franz Volhard Clinic at the Max Delbrück Center for Molecular Medicine,
 Wiltberg Strasse 50, D-13122, Berlin-Buch, Germany.
 SO Biochimica et biophysica acta, (1999 Apr 14) 1445 (1) 21-30.
 Journal code: 0217513. ISSN: 0006-3002.
 CY Netherlands
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199905
 ED Entered STN: 19990607
 Last Updated on STN: 20030118
 Entered Medline: 19990527
 AB We investigated the effect of **calcium** on the transfection of
 non-viral **DNA transfer** systems. Cationic proteins
 such as the nuclear protein H1, the polycation polylysine and a number of
 commercial transfection agents exhibited high transfection rates in the
 presence of Ca²⁺. Without Ca²⁺ H1 and HMGI were inactive in transfection
 of the human permanent endothelial cell line ECV 304 while cationic
 liposomes such as Lipofectin and Lipofectamine did not show any Ca²⁺
 dependence. More detailed experiments showed that Ca²⁺ was replaceable by
 the lysosomotropic agent chloroquine. Furthermore, it was possible to
 separate the transfection-**enhancing** role of Ca²⁺ from the actual
 transfection process by adding Ca²⁺ to the cells after the transfection
 period and still to obtain a significant transgene expression. This makes
 it possible to distinguish between cellular uptake of H1 (or mediator)-
DNA complexes and endocytotic release. We also replaced soluble
 Ca²⁺ by **Ca-phosphate** precipitates not containing **DNA**
 and obtained similar transfection results. This allowed us to suggest
 that the addition of free Ca²⁺ to the transfection medium resulted in
 nascent **Ca-phosphate** microprecipitates. The known fusogenic and
 membranolytic activity of such microprecipitates could facilitate the
 transport through and the release of the transfecting complexes from the
 endosomal/lysosomal compartment.